

**Patent claims**

1. A DNA coding for  $\beta$ -tubulin from Cyathostominae or fragments thereof.
- 5 2. A DNA as claimed in claim 1, comprising
  - a) a polynucleotide having at least 85% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 2;
  - 10 b) a polynucleotide having at least 85% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 4;
  - c) a polynucleotide having at least 85% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 6;
  - 15 d) a polynucleotide having at least 85% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 8;
  - e) a polynucleotide having at least 85% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 10.
- 20 3. A DNA as claimed in claim 1, comprising
  - a) a polynucleotide having at least 95% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 2;
  - 25 b) a polynucleotide having at least 95% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 4;
  - 30 c) a polynucleotide having at least 95% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 6;

- d) a polynucleotide having at least 95% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 8;
- 5 e) a polynucleotide having at least 95% identity to a polynucleotide coding for an amino acid sequence as set forth in SEQ ID NO. 10.
4. A DNA as claimed in one of claims 1 to 3, comprising a sequence as set forth in SEQ ID NO. 1.
- 10 5. A DNA as claimed in one of claims 1 to 3, comprising a sequence as set forth in SEQ ID NO. 3.
- 15 6. A DNA as claimed in one of claims 1 to 3, comprising a sequence as set forth in SEQ ID NO. 5.
7. A DNA as claimed in one of claims 1 to 3, comprising a sequence as set forth in SEQ ID NO. 7.
- 20 8. A DNA as claimed in one of claims 1 to 3, comprising a sequence as set forth in SEQ ID NO. 9.
9. A DNA as claimed in one of claims 1 to 3, comprising a sequence as set forth in SEQ ID NO. 11.
- 25 10. A DNA as claimed in one of claims 1 to 3 and 5 to 9, characterized in that it originates from *Cylicocyclus*.
- 30 11. A DNA as claimed in one of claims 1 to 4, characterized in that it originates from *Cyathostomum*.

12. A DNA as claimed in one of claims 1 to 3 and 5 to 10, characterized in that it originates from *Cylicocyclus nassatus*.
- 5 13. A DNA as claimed in one of claims 1 to 4 and 11, characterized in that it originates from *Cyathostomum coronatum*.
14. A DNA as claimed in one of claims 1 to 13, characterized in that it contains at least one base replacement in codon 200, which leads to the expression of a polypeptide having anthelmintic resistance.
- 10 15. A DNA, characterized in that it is complementary to DNA as claimed in one of claims 1 to 14 or fragments thereof.
16. An RNA, characterized in that it is complementary to DNA as claimed in one of claims 1 to 15.
- 15 17. An expression construct, characterized in that it comprises DNA as claimed in one of claims 1 to 14 and a sequence linked functionally therewith, which makes possible the expression of the DNA.
- 20 18. A vector, characterized in that it comprises DNA as claimed in one of claims 1 to 14.
19. A host cell, comprising DNA as claimed in one of claims 1 to 14, an expression construct as claimed in claim 17, or a vector as claimed in claim 18.
- 25 20. A polypeptide encoded by a DNA as claimed in one of claims 1 to 14 or fragments thereof.
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21. A polypeptide as claimed in claim 20, consisting of or comprising an amino acid sequence as set forth in SEQ ID NO. 2.
- 5 22. A polypeptide as claimed in claim 20, consisting of or comprising an amino acid sequence as set forth in SEQ ID NO. 4.
23. A polypeptide as claimed in claim 20, consisting of or comprising an amino acid sequence as set forth in SEQ ID NO. 6.
- 10 24. A polypeptide as claimed in claim 20, consisting of or comprising an amino acid sequence as set forth in SEQ ID NO. 8.
25. A polypeptide as claimed in claim 20, consisting of or comprising an amino acid sequence as set forth in SEQ ID NO. 10.
- 15 26. A polypeptide encoded by a DNA as claimed in claim 14.
27. A process for the preparation of a polypeptide as claimed in one of claims 20 to 26, comprising the expression of the polypeptide or fragments thereof in a prokaryotic or eukaryotic expression system.
- 20 28. The use of DNA oligonucleotides which hybridize specifically to DNA as claimed in one of claims 1 to 15, preferably to noncoding DNA sections, for the detection of DNA which originates from Cyathostominae.
- 25 29. The use of DNA which hybridizes specifically to DNA as claimed in one of claims 1 to 15 for the detection of DNA which originates from Cyathostominae and codes for a polypeptide as claimed in claim 26.

30. A procedure for the detection of Cyathostominae, characterized in that DNA as set forth in claim 28 is hybridized to DNA as claimed in one of claims 1 to 15 and this is amplified by means of PCR.
- 5 31. A procedure for the detection of Cyathostominae having anthelmintic resistance, characterized in that DNA as set forth in claim 29 is hybridized to DNA as claimed in one of claims 1 to 15 and this is amplified by means of PCR.
- 10 32. A DNA oligonucleotide comprising one of the sequences as set forth in SEQ ID NO. 12 to SEQ ID NO. 51 or a sequence derived from one of the DNA sequences as claimed in claims 1 to 15.
- 15 33. A diagnostic test kit comprising at least one of the oligonucleotides as claimed in claim 32 and/or antibodies as claimed in claim 35 or 36.
34. A diagnostic test kit as claimed in claim 33, characterized in that the DNA oligonucleotides are provided with a detectable label.
- 20 35. An antibody, characterized in that it reacts specifically with an epitope of a polypeptide as claimed in one of claims 20 to 26.
36. An antibody as claimed in claim 35, characterized in that it is monoclonal.
- 25 37. The use of antibodies as claimed in claim 35 or 36 as nematocides.
38. The use of polypeptides as claimed in one of claims 20 to 26 for the production of vaccines.
- 30 39. A procedure for the identification of substances which modulate the interaction of tubulin.

40. The procedure as claimed in claim 39, characterized in that
- a) the test substance is brought into contact with tubulin under those conditions which allow interaction of the tubulin molecules with one another and binding of the test substance to tubulin,
  - b) the binding of the test substance which has taken place is detected by determining the ability of the tubulin protein molecules to interact with one another and
  - c) the ability of the tubulin protein molecules to interact with one another in the presence of a test substance is compared with their ability to interact with one another in the absence of a test substance.
41. The procedure as claimed in claim 39 or 40, characterized in that the tubulin used is a polypeptide as claimed in one of claims 20 to 26.
42. The procedure as claimed in one of claims 39 to 41, characterized in that, for the detection of a modulation of the tubulin interaction in the presence of a test substance, a test system based on cells is used.
43. The procedure as claimed in one of claims 39 to 41, characterized in that, for the detection of a modulation of the tubulin interaction in the presence of a test substance, a cell-free test system is used.
44. A substance which is identified in a procedure as claimed in one of claims 39 to 43.
45. The use of a substance as claimed in claim 44 for the production of an agent for the prophylactic or therapeutic treatment of nematode attack.